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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/927,355	08/13/2001	Igor Shvets	1817-0113P	4598

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EXAMINER

NAGPAUL, JYOTI

ART UNIT	PAPER NUMBER
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1743

DATE MAILED: 09/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/927,355

Applicant(s)

SHVETS ET AL.

Examiner

Jyoti Nagpaul

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-170 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-19, 22-26, 28-43, 46-66, 69-96, 98-116, 119-138, 141-165 and 168-170 is/are rejected.
7) ☒ Claim(s) 20, 21, 27, 44, 45, 67, 68, 97, 117, 118, 139, 140, 166 and 167 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Amendment filed on June 29, 2005 is acknowledged. Claims 1-170 are pending.

Response to Amendment

Rejection of Claims 1-8, 11-17, 22-24, 28-41, 46-58, 81, 83-87, 92, 110-114, 119-125, 130-133, 136, 141-161, 168 and 169 as being unpatentable over Coffee (US 6595208) in view of Tisone (6063339) has been *withdrawn* in light of applicant's remarks.

Rejection of Claims 1-19, 22-26, 28-43, 46-66, 69-96, 98-116, 119-135, 137-138, 141-165, and 168-170 as being unpatentable over Gray (US 6041801) in view of Coffee further in view of Tisone has been *maintained* in light of applicant's remarks.

Rejection of Claims 9-10, 19, 25-26, 42-43, 60-66, 69-74, 82-88, 115-116, 137-138, and 162-165 as being unpatentable over Gray in view of Coffee as applied to claims above, and further in view of Sugahara (US 5508726) has been *maintained* in light of applicant's remarks.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. **Claims 1-19,22-26,28- 43,46-66,69-96,98-116,119-135,137-138,141-165, and 168-170** rejected under 35 U.S.C. 103(a) as being unpatentable over Gray (US 6041801) in view of Coffee further in view of Tisone.

Gray discloses a fluid management system. The system includes a dispenser body (11); a nozzle (22,23) mounted on the dispenser body and terminating in a dispensing tip, the nozzle has a nozzle bore with a nozzle entrance communicating with the main bore. The system further includes a divided barrier (12) for separating system and sample liquid within the assembly. The divided barrier comprises of elastomeric substantially incompressible material.

Gray fails to disclose a positive displacement pump for delivery of metered quantities of system liquid through the assembly to displace the barrier. However,

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Coffee discloses a dispensing device with a positive displacement pump for delivery of metered quantities of system liquid through the assembly. (See Figure 6a) Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Gray in order to increase the control of flow rate of the system liquid through the assembly to displace the barrier to deliver sample liquid through the nozzle bore.

With regards to **Claims 2-8,31-35,48-52,100-106 and 121-125,144-148,155-161**, Gray fails to disclose an electrode electrically coupled to the dispensing tip and high voltage generating means connected to at least on the electrodes to provide an electrostatic field therebetween. However, Coffee discloses a various arrangements of voltage ramping arrangements (Col. 5, Lines 14-15) and voltage generating means (20) connected to at least on the electrodes to provide an electrostatic field therebetween. (See Figure 6a) Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Gray in order to increase precision of quantity of sample liquid dispensed.

With regards to **Claims 11-15,36-38,53-56,75-78,89-91,107-109,126-129,149-152**, Gray fails to teach positive displacement installed in parallel. However, Tisone teaches positive displacement pumps installed in parallel. (Col. 6, Lines 66-68) Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Coffee to include positive displacement pumps in parallel in order to regulate the quantity or flow rate of liquid provided to the dispensing head.

5. **Claims 9-10,19,25-26,42-43,60-66,69-74,82-88,115-116,137-138, and 162-165,** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gray in view of Coffee as applied to claims above, and further in view of Sugahara (US 5508726).

Refer above for Gray and Coffee teachings.

With regards to **Claims 9-10,25,42,60-65,69-74,82-84,115,137, and 162-164,** Gray in view of Coffee fails to disclose a compression wave generator and a controller having means to actuate the generator to cause a wave in the sample liquid. However, Sugahara discloses a ink jet apparatus with a compression wave generator and a controller having means to actuate the generator to cause ink droplets to jet out of a nozzle which is connected to a ink chamber. (Col.1, Lines 64-65). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Gray such that the a compression wave generator and a controller having means to actuate the generator to cause a wave in the sample liquid as the positive displacement delivery of the sample liquid to the dispensing tip in order to assist in dispensing small droplets required by the assembly.

With regards to **Claim 19,26,43,66,85-88,116,138, and 165,** Gray in view of Coffee fails to disclose a piezoactuator and a controller. However, Sugahara discloses a ink jet apparatus utilizing a piezoelectric arrangement. (Col. 1, Lines 12-13) Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the apparatus of Gray such that a piezoactuator for causing a sudden compression of portion of the assembly carrying the system liquid and a controller having means to operate the piezoactuator to cause the compression

wave in the sample liquid in order to assist in dispensing small droplets required by the assembly.

Response to Arguments

Amendment filed on June 29, 2005 is acknowledged.

Rejection of Claims 1-8, 11-17,22-24,28-41,46-58,81,83-87,92,110-114,119-125,130- 133,136,141-161,168 and 169 as being unpatentable over Coffee (US 6595208) in view of Tisone (6063339) has been *withdrawn* in light of applicant's remarks.

Rejection of Claims 1-19,22-26,28- 43,46-66,69-96,98-116,119-135,137-138,141-165, and 168-170 as being unpatentable over Gray (US 6041801) in view of Coffee further in view of Tisone has been *maintained* in light of applicant's remarks.

Rejection of Claims 9-10,19,25-26,42-43,60-66,69-74,82-88,115-116,137-138, and 162-165 as being unpatentable over Gray in view of Coffee as applied to claims above, and further in view of Sugahara (US 5508726) has been *maintained* in light of applicant's remarks.

Applicant recites, "With respect to claims 110,131,154, prior art of record fails to teach or suggest the unique combination of limitations of the claimed invention, including the features of: "a divider barrier for separating the main bore into a system liquid reservoir and a sample liquid reservoir and comprising a body of elastomeric substantially incompressible material."

Gray discloses a divided barrier/flexible membrane (12) for separating the main bore/chamber (11) into system liquid reservoir/second fluid and a sample liquid

reservoir/first fluid and comprising a body of elastomeric/flexible substantially incompressible material. Gray also discloses "the second fluid (14)/air pressure is measured within the chamber through the transducer" (See Col. 4, Lines 59-61) Gray also discloses "In the following description and claims the term "membrane" shall mean anything, such as a septum, which separates two fluids so that one fluid does not flow into the other fluid." (See Col. 3, Lines 15-18) The fluid management system of Gray is used for dialysis machines and blood transport machines that use continuously measured amount of fluid for the patients.

In response to "flexible diaphragm (57)" is an elastomeric substantially incompressible material.

In response to applicant's remarks with respect to Tisone. Tisone teaches a syringe pump which meters a predetermined quantity or flow rate of reagent. Therefore it is for dispensing of a single droplet of a predetermined size accurately.

In response to applicant's remarks with respect to Sugahara, it is unclear as to what the applicant is referring to.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the

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shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jyoti Nagpaul whose telephone number is 571-272-1273. The examiner can normally be reached on Monday thru Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on 571-272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JN


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